Remarks & Arguments:

Summary of Examiner Interview – June 23, 2003

Applicants wish to thank the Examiner for his time and assistance during the personal interview with Applicants' representatives at the United States Patent & Trademark Office on the afternoon of June 23, 2003. At the interview, Applicants' representatives presented a copy of the Information Disclosure Statement by Applicant originally filed on January 30, 2002 and a copy of a date stamped receipt of it being hand-delivered to the United States Patent and Trademark Office. Two of the non-patent related references cited in the disclosure statement, specifically, the Armor magazine article and the Canadian Army CADPAT poster, were discussed during the interview.

The Canadian Army CADPAT poster shows examples of headwear, a shirt, trousers, vest, and bags printed with a camouflage design. The Canadians designed and began utilizing a disruptive camouflage pattern which consists of shapes having relatively straight sides. As can be observed from the poster, the Canadian camouflage is printed in sets of colors, one of which is primarily green and the other which is principally tan.

Unlike the Applicants' claimed invention, the Canadian poster shows the use of its camouflage pattern on military uniforms only. Applicants teach that the size of the pixels comprising the micro pattern should be adjusted in order to adapt to the size and shape of the camouflaged object. Secondly, the relative color proportions illustrated by the Canadian poster are not equivalent to the color proportions taught by the Applicants' invention as recited by claim 1 as currently amended. In view of these distinguishing features, Applicants' present invention is patentable over the Canadian Army CADPAT poster.

For similar reasons, Applicants' claimed inventions are also patentable over the Armor magazine article. A description of the technology taught in the Armor article can be found in the

instant application's specification at paragraphs 21-23. However, the Armor article also fails to disclose or suggest the novel color proportions as recited in claim 1 as amended.

Claims 1, 3-6, 15-23 and 25-30 are currently pending in the application. The micro pattern and macro pattern camouflage system taught in the current patent application is neither disclosed nor suggested by either Josephs, U.S. Patent No. 6,061,828, [hereinafter Josephs '828] or Conway, U.S. Patent No. 5,077,101 [hereinafter Conway '101]. Josephs '828 and Conway '101 appear to disclose a micro pattern system only. Josephs '828 and Conway '101 are discussed in relation to the Applicants' claimed inventions more thoroughly below.

Finally, Applicants understand that a tentative agreement was reached; whereby, in light of the Examiner's comments on the references cited in the Office Action, the claims as discussed and amended are patentable over Conway '101 and Josephs '828. In addition, Applicants understand that claims 20-23 and 25-26, which were previously withdrawn due to a restriction requirement, may properly be rejoined if revised to include all of the limitations recited in amended claim 1. Applicants respectfully request rejoinder of claims 20-23 and 25-30 for examination on the merits. Applicants respectfully submit that claims 20-23 and 25-30 are allowable over the prior art of record for the reasons cited above.

Introductory Remarks

In a telephone conversation with a previous Examiner, Applicants' attorneys elected claims 1-19 with traverse. Applicants strenuously object to the statement in the office action which indicates the election was made "without traverse." This is incorrect, as Applicants made the election with traverse. Applicants maintain their request that claims 20-23 and 25-26 be reinstated and fully examined since the invention recited in claim 1 is now patentable over the prior art. Applicants also request an examination on the merits of claims 27-30. Applicants respectfully submit that claims 20-23 and 25-30 are allowable over the prior art of record for the reasons cited above.

Information Disclosure Statement

Applicants note with appreciation the examiner's consideration and making of record the Information Disclosure Statement by Applicant.

Restriction Requirement

The Office Action states that Applicants elected claims 1-19 without traverse during a telephone conversation between the Examiner and the Applicants' attorney. Applicants respectfully disagree with this assertion. The Applicants provisionally elected claims 1-19 with traverse. No written restriction requirement was incorporated into the Office Action.

In accordance with MPEP § 812.01, Applicants respectfully request a written restriction requirement be made of record. The restriction requirement should include the date on which the election was made, the name of the attorney who made the election on the Applicants' behalf, and a complete record of telephone interview. In addition, Applicants request a formal restriction requirement which explains why the Examiner believes a restriction is mandated, identifies each group of claims, provides a listing of which claims belong in each group, classifies each group, and briefly describes the subject matter covered by each group.

Rejoinder

Claim 1 is directed to a patentable disruptive camouflage system. Applicants respectfully request claims 20 – 23, as currently amended to include all of the limitations recited by claim 1, directed to the process of making or using the patentable product, previously withdrawn from consideration as of a result of a restriction requirement, be rejoined and examined for patentability. Additionally, Applicants respectfully request claims 25 and 26, as currently amended, directed to an embodiment of the patentable product, previously withdrawn from consideration as a result of a restriction requirement, be rejoined and examined for patentability.

Claims

Claims 1, 3-6, 15-23 and 25-30 are pending in the application. Claims 1, 20, and 26 are in independent form. Claims 1, 3-6 and 15-19 are allowed. Claims 20-23, 25-28 and 30 currently stand withdrawn from the application. Claim 29 has been rejected as being indefinite.

Claim 20 was amended in Applicants' previous response to recite all of the allowable limitations recited by allowed claim 1.

Claims 25-26 were revised in Applicants' previous response in order to recite all of the allowable limitations recited by allowed claim 1. Claim 26 has been broadened in some ways as well as narrowed in others.

Dependent claims 27-30 were added in Applicants' prior response and are allowable for at least the reasons that claim 26 is allowable. Claim 29 has been amended to correct a typographical error.

Cited References

First, Josephs '828 teaches a clothing garment with a camouflaged pattern and a method of manufacturing the garment. The invention disclosed by Josephs '828 describes a shading-based camouflage which when applied to articles of clothing blends the subject into his surroundings. The camouflage pattern system consists of a plurality of non-uniform rectilinear shapes; whereby, adjacent rectilinear shapes are different colors. Subsequently, the camouflage pattern is repeated in a manner such that shapes along an edge of the pattern align with and are the same color as the corresponding shapes along the opposing edge to form new rectilinear shapes without visual disruption.

Secondly, Conway '101 discloses a tri-colored camouflage system which relies on the application of a series of adhesive layers. The camouflage pattern is designed to be a combination of black, brown, and green in the visible spectral range and to echo the range of

thermal emissivities in a camouflaged subject's background. In order to avoid detection by infrared sensing devices, layers of material with varying emissivities will be superimposed onto each other. Perforations are made in either the top layer or the top and intermediary layers, and splotches of high emissivity epoxy paint may be applied to the upper layers. The paint splotches and perforations in the adhesive layers, both of which are too small to be individually detected, are necessary to create blurred localized regions with higher average emissivities. These elements of the camouflage design are crucial to attaining the objective of disguising the target's signature in the visible and infrared ranges.

Applicants' Claimed Invention

In contrast, the Applicants' inventions disclose a disruptive camouflage system having a macro pattern and micro pattern design; thereby, disrupting the subject's shape and blending it in with its surroundings. The macro pattern is independent of the subject's background characteristics, depends solely on the subject's shape, and focuses on the axes of symmetry rather than borders. The micro pattern, constructed from a plurality of pixels, provides the camouflaged subject with its texture by modifying the pixel shape and color to mimic the subject's environment. The macro pattern disrupts the shape of the camouflaged subject. The micro pattern blends the subject into his surroundings, and combinations of the micro pattern pixels form the shapes of the macro pattern. Finally, the present invention recites the novel limitation of a range of the camouflage pattern's color variation from wet to dry conditions.

Prior Unidentified Problems in Prior Art

The Applicants' claimed inventions improve upon the prior art in the field by identifying and solving problems with the prior art; namely, modest fluctuations in reflectivity from wet to dry conditions and masking the subject's configuration while simultaneously blending the subject into its background through the implementation of a macro pattern and a micro pattern.

Even if the solutions to the aforementioned problems with the prior art were blatant, the obviousness of the solutions does not automatically make the invention or improvements unpatentable. If the heart of the invention lies in the solving of undiscovered problems, the invention is patentable despite the obviousness of the problems' solutions. The development of the Applicants' claimed invention was the direct result of attempts to rectify the problems identified above. Accordingly, the invention stems from the discovery of and solution to two previously unidentified problems, and hence, is patentable.

35 U.S.C. § 103(a) – Obviousness

In order to determine whether any claim of an application is obvious in light of the prior art under 35 U.S.C. § 103, each and every limitation of the claimed invention must be either explicitly disclosed or inherent in the references. References may be combined to demonstrate obviousness if a primary reference includes the majority of the elements and limitations claimed by the Applicants' inventions and a secondary reference teaches those elements and limitations that the primary reference is missing. In addition, a motivation or suggestion to combine the references must exist. Notwithstanding, each and every element and limitation of the Applicants' claimed inventions must still be found in at least one of the references.

Motivation to Combine

"Obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention, *absent some teaching, suggestion, or incentive* supporting the combination." *ACS Hosp. Sys., Inc. v. Montefiore Hosp.*, 732 F.2d 1572, 1577 (Fed. Cir. 1984). In order for the Applicants' claimed invention to be obvious in light of Josephs '828 and Conway '101, there must be an explicit or blatant reason to combine the two references. However, no reason exists to combine Josephs '828, which discloses a two-dimensional rectilinear camouflage

pattern, and Conway '101, which discloses a three-dimensional curvilinear camouflage pattern composed of adhesive layers, perforations, and splotches of epoxy paint.

Actually, the modification of Conway '101 to incorporate the teachings in Josephs '828 would destroy at least one of the intended functions of the camouflage system and vice versa. First, if the invention described in Conway '101 is modified to become two-dimensional like Josephs '828, one of the key advantages of Conway '101, specifically disguising the camouflaged target's thermal signature in the infrared range, would be destroyed. Conway '101 mimics the infrared emissivity of the target's environment by perforating layers of material with varying infrared emissivity and then relies on detectors blending the varying emissivities to see an average infrared emissivity substantially equivalent to that of the target's background. With a two-dimensional system similar to Josephs '828, perforations would destroy the crucial function of masking the target's visual signature in the infrared range.

Conversely, modifying the invention disclosed in Josephs '828 to incorporate the teachings of Conway '101 would eliminate the ease of manufacture that is inherent in Josephs '828 and one of the invention's intended functions. Josephs '828 teaches a method by which sheets of fabric are printed with a series of dyes to form a repeating pattern. If the three-dimensional layering method taught by Conway '101 was applied to the repeating pattern in Josephs '828, the simplicity of the manufacturing process would be destroyed.

Finally, references are not properly combinable if one of the references teaches away from the other references. In this instance, Josephs '828 extensively discusses and describes the advantages rectilinear shapes have over the curvilinear shapes previously utilized. At column 2, lines 32-35, Josephs '828 claims the use of rectangular or rectilinear shapes is his enhancement over the prior known art in the field. At column 4, lines 38, Josephs '828 states "it is the overall pattern of rectilinear shapes, and essentially the coloring thereof, which provides the desired effect"; therefore, Josephs '828 fails to suggest a combination with a curvilinear camouflage pattern such as those depicted in Conway '101. Therefore, Applicants respectfully aver no

motivation to combine the two cited references exists and the primary reference actually teaches away from the secondary reference.

Non-obviousness over proposed combination

Even if a motivation to combine is found, each and every element and limitation of the Applicants' claimed inventions must still be found in at least one of the cited references. However, all of the limitations essential to the present claimed inventions cannot be found in at least one of the cited references. The references cited in the rejection are missing two limitations that are crucial elements of the Applicants' claimed inventions; particularly, the macro pattern and micro pattern system and the minimal color variation between wet and dry conditions.

First, most camouflage systems are designed either to hide the target's configuration or to blend the target into the background. Achieving both of these aims significantly minimizes an observer's ability to detect the subject's visual and infrared signatures. Applicants' present inventions address both of these objectives via the macro pattern and micro pattern system developed by Timothy O'Neill, one of the co-inventors. The claimed inventions utilize a macro pattern and a micro pattern which disrupts the subject's features and matches the subject to its background's characteristics, respectively. To disrupt the subject's shape, the macro pattern system focuses on the axes of symmetry unlike traditional approaches which concentrate on the boundaries. By adding a micro pattern which mirrors the texture and size components of the background, the micro pattern creates spatial "noise" that emulates the tactical backdrop. To summarize, the macro pattern and micro pattern system obscures a moving target better than previously known camouflage systems because it disrupts the subject's features using the axes of symmetry and provides the subject with a textural appearance similar to his surroundings. However, Josephs '828 and Conway '101 each only appear to teach a micro pattern. The pixels depicted in micro patterns of Josephs '828 and Conway '101 are too large to combine in order to form a macro pattern that would disrupt a camouflaged subject's shape.

Lastly, previous camouflage systems have not addressed the color distortion of the camouflaged subject resulting from various weather conditions. Traditionally, camouflage material becomes darker and less reflective when wet. Therefore, military units would need to carry multiple sets of camouflage utility uniforms in order to accommodate for a range of weather conditions in a single tactical environment. Claim 30 introduces an additional limitation whereby the camouflaged material's lightness value [L*] between its dry and wet state may not substantially vary more than 17% to 28%. Given that neither Josephs '828 nor Conway '101 discloses or suggests any limitation on the acceptable variance of color or brightness when the camouflaged material is used in varying environmental conditions, the Applicants' claimed inventions are patentable over the references.

In conclusion, the macro pattern/micro pattern system is recited in independent claims 20 and 26 of the application. Since neither Josephs '828 nor Conway '101 includes this limitation, therefore independent claims 20 and 26 are novel and not obvious in view of the prior art of record. Thus, the inventions recited in claims 20 and 26 and their respective dependent claims are patentable.

Rejection under 35 U.S.C. § 112(2)

The office action states that claim 29 is rejected as being indefinite as the claim "depends on itself." Applicants have amended claim 29 to correct a typographical error as claim 29 properly depends from independent claim 26. For at least this reason, the rejection is now moot and should be withdrawn.

Entry of Amendment

Applicants request entry of this amendment as it places the application in condition for allowance by overcoming the rejection of claim 29, thereby reducing the number of issues for appeal.

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Conclusion:

Applicants believe that the Examiner's rejection has been overcome and the application is currently in condition for allowance. Therefore, Applicants respectfully request a timely Notice of Allowance be issued on this application.

Respectfully submitted,

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